Central Alaska Network
Long Term Ecological Monitoring Program
Denali National Park & Preserve
Summary Trip Report

Lower Thorofare Mini-Grid

Initial Visit
July 27 – August 3, 2009

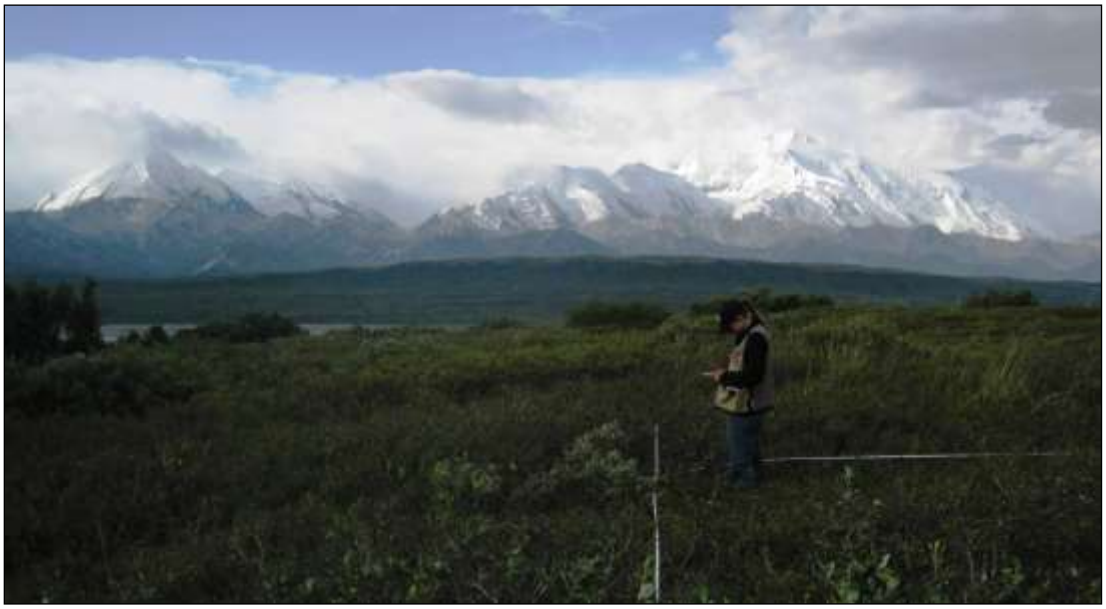

Photo 1. The Lower Thorofare Minigrid sits on the low hill that rises up from the McKinley and Thorofare rivers. It is characterized by low diversity dwarf birch shrublands intermixed with dwarf forests, alder, and wet meadows, also reaching floodplain of the Thorofare river in its southern extremity.

Author: Sarah Stehn
Contributors: Janet Prevey, Duke Brady, Ashley Bembenek
Date: August 26, 2009

PURPOSE: The purpose of this trip was to establish 25 permanent vegetation monitoring plots and collect first-year vegetation and soils data according to the protols established for the central Alaska Network vegetation monitoring program (Roland *et al*. 2005). Twenty-five points were visited, 22 were installed and sampled in the span of 6 working plus 2 travel days in which we sampled one plot. Two points were determined to be in active river channels, and one in a large lake and therefore were unfit for sampling.

PERSONNEL: Sarah Stehn- non-vascular collections, soils data (7/27-7/31), crew lead
Janet Prevey- vascular collections
Duke Brady- plot photographs and tree measurements
Ashley Bembenek- (7/31-8/3) soils data and tree measurements

ACCESS TO MINI-GRID: The Lower Thorofare mini-grid is accessed by foot from around mile 70 of the Park road. To carry all the gear we received assistance from 2 backcountry rangers and a SCA. They carried most of the field sampling gear, a tent or two, and our bear barrels. We parked at a wide spot along the road before the big jog to the right which is fairly obvious. The hike from the road to camp took about 1.5 hours. On day 5 we were re-supplied by 2 backcountry rangers and Ashley the ORV Technician joined us on the plot work. The re-suppliers came with another bear barrel each and they took out soil samples, non-vascular samples, trash, extra clothing, as well as the solar panel charging system since we knew we would be done soon and had plenty of charged batteries. Once the grid was completed we carried the remaining gear out ourselves with two people doing two trips.

CAMPSITE LOCATION: We camped near the center of the grid, northeast of point 14 (longitude -150.6616197, latitude 63.4299585). The campsite is not visible from the road, has a reliable water source (a creek and a blown out beaver dam), and a few flat spots that are not too hummocky. From the parking spot, the walk to camp is fairly straightforward. Most of the brush can be avoided if you are willing to take a sinuous route down to camp. On the last ridge before camp, descending down slightly east of camp will be the most pleasant and brush-free. The ridge south of the campsite offers views of Denali when clear. Satellite phone reception and radio contact on the Thorofare repeater was good here. Other campsites are possible farther up or down this stream as long as care is taken that tents are not visible from the road. However, this campsite was one of the best of the summer.

WATER AVAILABILITY: We relied completely on the water near our campsite, but other water exists in the grid in numerous small lakes and other smaller creeks. The water in the Thorofare River near the south row of the grid is very silty.

HIKING CONDITIONS: Hiking conditions at the Lower Thorofare mini-grid were somewhat strenuous due to moss and turf hummocks. There are many bands of brush, but most can be avoided by choosing routes based on the satellite imagery maps. The bluff down to the river and Points 1-5 did not pose a problem and we actually preferred the steep bare soil sections to bashing through brush although footing was a little tricky.

WEATHER PATTERNS: Summer 2009 was very hot and dry, and multiple fires burned in the northwest part of the park and surrounding areas. Over the 8 days we spent on the Lower Thorofare Minigrid it rained for one afternoon and into the night, but was dry the next day. Temperatures were almost hot, in the 80s and at night dipped down, August 1st bringing a frost. Winds were variable and in spurts provided relief from the mosquitoes. The wind direction seemed to change daily and since there was lots of smoke to the west, and it was clear to the east, it was variably very smoky or more clear, the smoke at times being thick and unpleasant.

ANIMAL OBSERVATIONS: We had a few very enjoyable wildlife encounters at Lower Thorofare. We saw a very large cow moose and her yearling near Point 5. One night while eating at the kitchen area we witnessed a young male and female moose browsing in the alder and willow across from the old beaver pond at camp. They lingered for an hour or so, seeing us but acting uninterested. Near Point 25, on the bare topped hill above, there appeared to be a fox den. We first witnessed an older fox out hunting while we were walking, at one point leaping about 4 feet in the air in pursuit of lunch. Then we noticed three smaller fox on the hill peering down at us and scrambling around to get a better view. The bluff that goes down to the Thorofare River proved to be a good place to view birds. We viewed falcons hunting a top the bluff multiple days. We were also followed by a group of merlins as we moved along the bluff, presumably they were hunting for any small rodents we might stir in our passing. They flew quite low near us, swooping by and shrieking repeatedly and then perching silently in nearby trees. Mosquitoes and no see-ums were moderate. We saw only 2 piles of bear scat the entire grid, but did note digging on the river bar.

Photo 2. View of Point 16 showing low dwarf birch and the slight ridge and valley arrangement of much of the minigrid.

Photo 3. View of Point 13 showing some of the krummholtz type spruce stands scattered throughout the grid.

PHENOLOGY OBSERVATIONS: Phenology for Lower Thorofare in late July was a little past. Many plants were in their fruiting stage, or had gone to seed and some already decomposing. Low bush blueberries were delicious and large.

GENERAL NOTES ON PLOT WORK: The Lower Thorofare mini-grid was a fairly nice place to work. The campsite was a great place to come back to every night and hiking was never too strenuous. The most difficult portion were the plots that landed in alder thickets. It would be wise to spread these out over a few days, mixing them with more pleasant plots rather than do them all together as we ended up doing.

This is an ecologically diverse grid, but not species diverse, especially for non-vascular plants. We sampled one river bar plot, 5 plots in poplar forest, 7 plots in alder/willow brush, 7 plots in permafrosted low dwarf birch, and 3 in turf and moss tussocks. Vascular species were 20-35 per point and non-vasculars averaged about 10-15.

RECORD OF COLLECTIONS:

Name	Collection	Numbers
J. Prevey	Vascular	JP-09-153 to JP-09-197
S. Stehn	Non-vascular	SS-09-311 to SS-09-429
D. Brady	Photographs	IMG_0941 to IMG_1249
S. Stehn & A. Bembenek	Soil	24 samples
D. Brady	Tree Cores	none collected, no trees

DAILY ACTIVITIES:

Date	Activity/Points Completed	Time Period	Comments
7/27/09	Transport personnel and gear to minigrid. Walk-in with help from backcountry rangers	8am-3:30pm	
	Point 17	4pm-6:15pm	Grassy plot on edge of brush line
7/28/09	Point 1	9am-10:30am	River bar plot
	Point 2 and 3	10:30am-11pm	Point in river, points not sampled
	Point 4	11:30am-2:15pm	Half on gravel bar, half in poplar forest
	Point 5	2:45pm-4:30pm	Young poplar forest
7/29/09	Point 22	9:15am-11:00am	Opening near brush
	Point 21	11:45am-2:15pm	1m tall dwarf birch
	Point 16	2:45pm-4:15pm	Mostly out of brush
	Point 14	5:15pm-6:15pm	Dwarf birch, non-diverse
7/30/09	Point 9	8:45am-10:15pm	On edge of bluff, semi shrubby
	Point 11	11:15am-12:45pm	0.5 m high dwarf birch, some turf
	Point 12	1:45pm-3:15pm	0.5 m high dwarf birch, some turf
	Point 13	3:45pm-5:30pm	0.5 m high dwarf birch, some turf
7/31/09	Point 25	10am-11:30am	Dwarf birch
	Point 24	12pm-2:15pm	Tussock tundra
	Point 18	3:15pm-5pm	Just off ridgetop, half in alder
8/1/09	Point 6	9:15am-11:45pm	Dwarf poplar forest, steep plot
	Point 7	1:15pm-3:30pm	Dwarf poplar forest, steep plot
	Point 8	4pm-6:15pm	Willow and alder thicket
8/2/09	Point 10	9am-11am	Poplar forest with 2-3m brush understory
	Point 20	12:30pm-2:45pm	Alder thicket, slight slope
	Point 19	3:30pm-5:15pm	Alder thicket, on drainage edge
8/3/09	Point 23	9:45am-11:45am	Half alder, half turf tussocks
	Ferried gear out to road and got picked up for transport back to HQ.	12pm-1pm	

FUTURE CONSIDERATIONS: The 22 accessible points can likely be sampled in 6 days. It took us 7 but some time was spent investigating non-sampleable plots, and some was spent preparing for and meeting Ashley and the backcountry rangers on the resupply day. The dwarf birch plots on the solid, more permafrost-influenced areas went very quickly. Four plot days on this grid should be standard with the exception perhaps of the alder and forested plots. A resupply is not needed on this mini-grid, it would be more valuable to have help packing gear out on the last day. There were no conifers to core in the area this time, so it may not be necessary to bring tree coring equipment, but this may change in the future.

Photo 4. View looking southeast from perimeter at Point 14 showing the broad expanse of low-statured shrublands towards the Thorofare and McKinley Rivers.

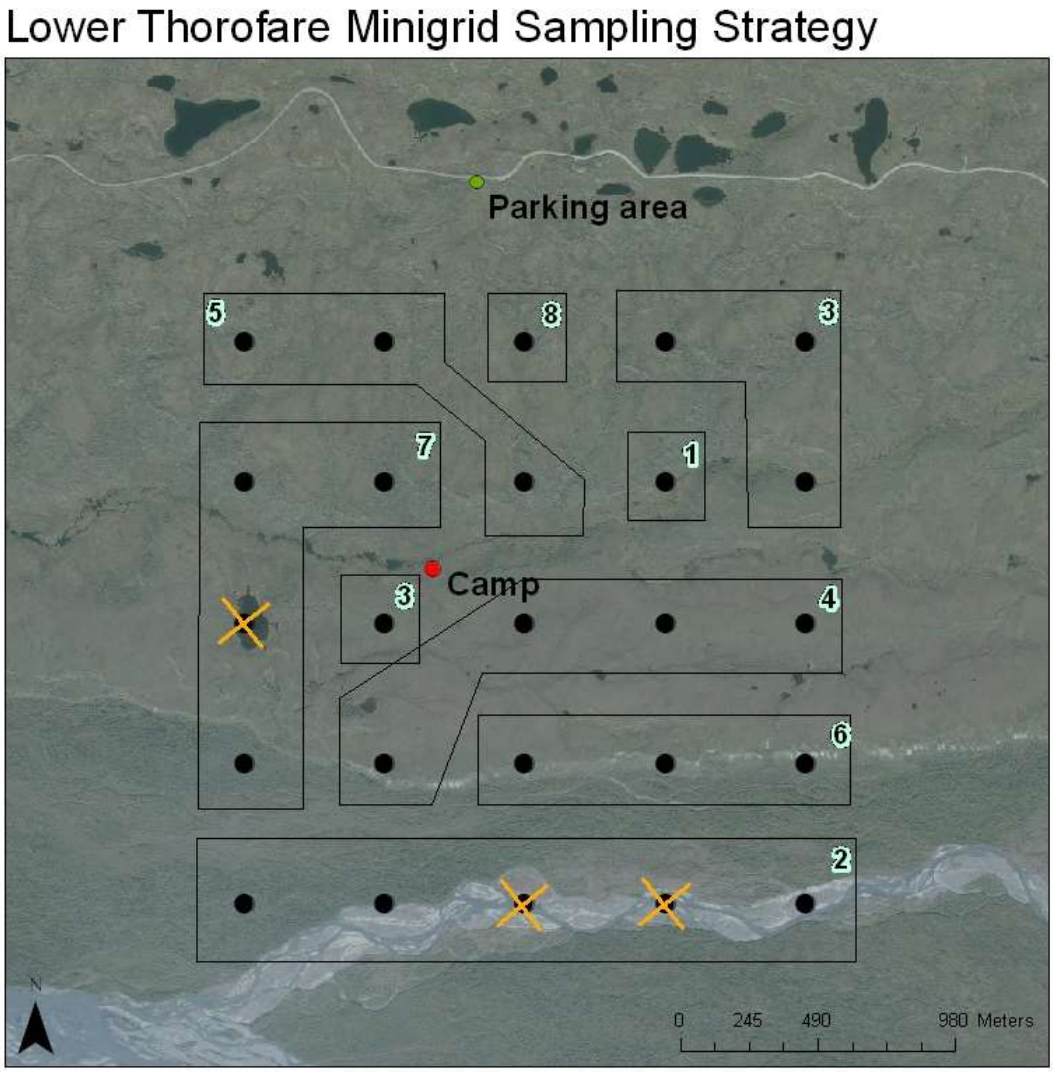

Photo 5. Map showing grid points grouped by sampling day. Day number shown in upper corner of each group.

REFERENCES CITED:

Roland, C.A., Oakley, K., Debevec, E. & Loomis, P. (2005) Monitoring vegetation structure and composition at multiple spatial scales in the Central Alaska Network. National Park Service, Central Alaska Network, Final Monitoring Protocol.